TOPOLOGY SEMINAR

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Introduction to Geometric Complexity Theory

Tuesday, January 10th. 4:00 in 383-N

Abstract: The Geometric Complexity Theory (GCT) program was introduced by Mulmuley and Sohoni to attack fundamental lower bound problems in computational complexity theory—such as P vs NP—using algebraic geometry and representation theory. In addition to presenting the basic structure of the GCT program, I will discuss some of the intuition behind the use of representation theory in complexity, as well as how GCT relates to classical questions in representation theory such as the Littlewood-Richardson rule for the decomposition of tensor products of representations of $GL_n$ into irreducibles.